Reference #7

OWENS-ILLINOIS
Glass Container
Division

FEB 0 8 1985

February 5, 1985

REFERENCE #7
SITE NAME Jones Lot
SITE ID IND980607790

Ecology and Environment, Inc.
111 West Jackson
Chicago, IL 60604

Attention: Mr. Steven R. Nelson

Dear Mr. Nelson:

Re: Streator Superfund Investigation - Chromium Refractory Brick

The enclosed information is provided, per the request of Mr. A. W. Long, in response to your December 12, 1984 inspection of the Streator, Illinois Superfund sites.

The chromium content of a standard chrome-magnesite refractory brick (NUCON 50) is shown in Exhibit 1. The glass furnaces historically used by Owens-Illinois' Streator plant would have been constructed of about 15 - 20% by weight of chromium-containing refractory brick, according to our engineering specialists.

RCRA EP data, typical of that generated in numerous tests on chromium-bearing refractory bricks like those placed in these landfills prior to implementation of the federal RCRA hazardous waste regulations, appears in Exhibits 2 a, b, and c. These test results basically reveal the presence of extractable chromium at levels ranging from below the RCRA EP toxicity limits of 5.0 parts per million (ppm) up to about 35 ppm. You can see that these refractory bricks would sometimes be considered hazardous waste on the basis of the RCRA EP guidelines.

This data should provide a basis for concluding your investigation of these sites. Please contact us if there are any additional questions on this subject.

We are requesting that you provide us copies of your inspection reports and all relevant findings or recommendations. This information should be directed to Mr. A. W. Long, Owens-Illinois, Inc., One SeaGate, Toledo, Ohio 43666.

Very truly yours,

OWENS-ILLINOIS, INC.

Joseph L. Green
GCD Environmental Control Coordinator

bkg
Enc.

Exhibit 1

NUCON 50

Classification:	Burned Chrome-Magnesite Brick		
Physical Properties: (Typical)	Bulk Density		
	Pounds/cu.ft.		185 to 190
	Grams/cc		2.96 to 3.04
	Apparent Porosity, %		18 to 21
	Cold Crushing Strength		
	Pounds/sq.in.		3000 to 4500
	Kilograms/cm^2		211 to 317
	Modulus of Rupture		
	At Room Temperature		
	Pounds/sq.in.		800 to 1100
	Kilograms/cm^2		56 to 77
	At 2300°F. (1260°C.)		
	Pounds/sq.in.		1400 to 1900
	Kilograms/cm^2		99 to 134
	Reheat Test		
	% Linear Change		
	At 3140°F. (1725°C.)		+0.2 to +0.4
Chemical Analysis: (Approximate)	Silica	(SiO_2)	2.0%
	Alumina	(Al_2O_3)	17.9
	Iron Oxide	(Fe_2O_3)	9.4
	Lime	(CaO)	0.5
	Magnesia	(MgO)	49.5
	Chromic Oxide	(Cr_2O_3)	20.7

The above data are typical of the properties of commercial 9" straight brick. The data are subject to reasonable variations and therefore should not be used for specification purposes.

ASTM Test Methods, where applicable, used for determination of data.

Protected by U.S. Patents No. 3,180,743 and No. 3,180,744.

Glass Container
Division

Engineering & Research
Department
Technical Center

June 24, 1981

To: E. R. SULIK - 04/BROCKPORT

Exhibit 2 (a)

BROCKPORT "C" FURNACE
BRICK SAMPLE FOR EXTRACTION TEST

This is written confirmation for your RCRA file, on the data obtained from the US EPA EP Toxicity test on a regenerator brick sample. The data are as follows:

Parameter	Limit (mg/l)	mg/l Brockport "C" Furnace 50% Direct Bonded Chrome-Mag Rt (East) Regenerator Outside Target Wall Behind #3 Port 5/18/81
D004 Arsenic	5.0	<0.2
D005 Barium	100.0	<10.
D006 Cadmium	1.0	<0.1
D007 Chromium	5.0	2.6
Chromium +6	5.0*	2.2
D008 Lead	5.0	<0.5
D009 Mercury	0.2	<0.02
D010 Selenium	1.0	<0.1
D011 Silver	5.0	<0.5

*Proposed

This brick sample extract is within the limits of the US EPA EP Toxicity test. The subject chrome-mag brick is not a hazardous waste.

The elemental value of this waste was recovered by recycle through the Bi-Corp Company.

B E Wiens

B. E. WIENS
GCD - Environmental Technology

bds

Exhibit 2 (b)

2/12/81

LAKELAND "A" FURNACE

CENTER WALL AT TOP OF CHECKERS

RCRA E.P. HAZARDOUS WASTE TEST

	Cd	<0.1	ppm
	Pb	<0.5	ppm
	Ag	<0.5	ppm
	Ba	<10	ppm
Total	Cr	15.3	ppm
	Cr^{+6}	14.8	ppm
	Se	<0.1	ppm
	As	<0.2	ppm

R. Hall
OWENS-ILLINOIS, INC.
Analytical Services

to A. W. Long - NTC
B. E. Wiens- NTC

DIVISION/SECTION

PROJECT/CHARGE
8008-1381.015

ANALYTICAL SERVICE REPORT

Exhibit 2 (c)

OWENS-ILLINOIS
Technical Center
Corporate Technology

S
DATE RECEIVED

12 / 30 /82
DATE COMPLETED
1 / 5 / 83

EP TOXICITY TEST (40 CFR Part 261 and Test Methods for Evaluating Solid Waste, SW-846, USEPA May 1980)

Analytical Methods: AA-Ba, Cd, Cr (Total), Pb, Ag; Cr(VI) by diphenylcarbazide; As by hydride and silver diethyldithiocarbamate; Hg by AA cold vapor method. Se determined by CRA.

Sample Description: Portland "A" Checker Brick - 83E001 - Top Basic, Checker Brick; 82E002 - Top Basic, Sidewall; 83E003 - Hi Chrome, Checker Brick; 83004 - Hi Chrome, Sidewall

	Element	Concentration Limit	CONCENTRATION FOUND 83E 001	83E 002	83E 003	83E 004
D004	Arsenic	5.0 ppm				
D005	Barium	100.0				
D006	Cadmium	1.0				
D007	Chromium (total)	5.0	2.1	< 0.5	14	35
	Chromium (VI)	5.0*	< 0.5	< 0.5	14	34
D008	Lead	5.0				
D009	Mercury	0.2				
D010	Selenium	1.0				
D011	Silver	5.0				
Proposed concentration limit						
Sample Treatment:	As Received		X	X	X	X
	Crushed					
	Cored					
Extraction Method:						
	Stirred					
	Tumbled		X	X	X	X
	Automatic pH Control					
	Manual pH Control		X	X	X	X
	Initial pH		7.5	7.5	8.4	8.5
	Final pH		5.4	8.0	7.7	5.2

COMMENTS:

BY N. Woodworth | APPROVED F. Hall | BOOK SN-9 SN-4 | PAGE 30-33 112

12/4/8